

2.3 Sampling Methodology

The sampling period was from May 1999 to December 2000. As suggested by NC DWQ, a minimum of twenty storm events, distributed approximately evenly in each quarter of a calendar year, was required at each monitoring site. Table 2.2 summarizes the number of composite samples collected at all monitoring sites.

Table 2.2: Collection of Composite Highway Runoff Samples

Site no.	Ending June 99	Ending Sept 99	Ending Dec 99	Ending Mar 00	Ending Jun 00	Ending Sept. 00	Ending Dec. 00	Total number of samples/site
1	5	6	6	6	4	-	-	27
2	4	6	3	6	5	-	-	24
3		3	7	7	5	4	-	26
4	1	6	6	7	5	-	-	25
5	1	4	7	7	4	2	-	25
6	1	4	4	6	6	4	-	25
7			3	4	6	3	4	20
8		1	5	6	5	5	-	22
9			5	5	5	5	-	20
10		5	6	6	6	-	-	23
Sub-total	12	35	52	60	51	23	4	Total = 237

A document titled “Procedures and Quality Control for Sampling and Analysis of Highway Runoff Storm Water Samples” was submitted to NC DWQ for approval in April of 1999. This document provides details of the sampling methodology and procedures. The following sections summarize the key features of the sampling methodology that was included in the Procedures and QC document.

2.3.1 Storm criteria:

A representative storm event, for sampling purpose, is defined as a single storm event that accumulates greater 0.2 inches of rainfall preceded by at least 72 hours in which no storm event measuring greater 0.2 inches has occurred. A single storm event may contain up to 10 consecutive hours of no precipitation. For example, if it rains for 2 hours without producing any collectable discharge and then stops, a sample may be collected if a rain producing discharge begins again within the next 10 hours.

2.3.2 Sample handling requirements

Procedures of sample collection, storage, and preservation were performed in accordance to guidelines for sample preservation and storage as recommended by Standard Methods (APHA, 1998). Volume-weighted composite runoff samples were collected by American Sigma 800 or 900 Max automatic water samplers at all sites except 8 and 9. Composite runoff samples were collected at sites 8 and 9 through the use of a passive elliptical splitter that was designed to divert a constant fraction of flow into a large collection tank. Runoff samples in the tank were stirred with a plastic paddle to be